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In the United States Patent and Trademark Office
Board of Patent Appeals and Interferences

In re Application of:

James R. Milch, et al

A Method For Reducing The Power Used By Emissive Display Devices

Serial No. 10/003,840

Filed November 1, 2001

Group Art Unit: 2676

Examiner: Po Wei Chen

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Valerie J. Richardson

Valerie J. Richardson

March 29, 2004

Date

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPEAL BRIEF TRANSMITTAL

Enclosed herewith in triplicate is Appellants' Appeal Brief for the above-identified application.

The Assistant Commissioner is hereby authorized to charge the Appeal Brief filing fee to Deposit Account 05-0225. A duplicate copy of this letter is enclosed.

Respectfully submitted,

Attorney for Appellants
Registration No. 33,564

Andrew J. Anderson/vjr
Telephone: (585) 722-9662
Facsimile: (585) 477-1148

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Sir:

APPEAL BRIEF PURSUANT TO 37 C.F.R. 1.192

Applicants hereby appeal to the Board of Patent Appeals and Interferences from the Examiner's Final Rejection of claims 1-20, 22-42 and 44-46 which was contained in the Office Action mailed October 29, 2003.

A timely Notice of Appeal was filed January 27, 2004.

Respectfully submitted,

Attorney for Applicants
Registration No. 33,564

Andrew J. Anderson/vjr
Rochester, NY 14650
Telephone: (585) 722-9662
Facsimile: (585) 477-1148

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Real Party In Interest

Eastman Kodak Company is the assignee and the real party in interest.

Related Appeals And Interferences

No appeals or interferences are known which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

Status Of The Claims

Claims 1-20, 22-42 and 44-46 are pending in the application.

Claims 1-20, 22-42, and 44-46 stand rejected under 35 USC § 103.

Claims 1-20, 22-42, and 44-46 are being appealed.

Appendix I provides a clean, double spaced copy of the claims on appeal.

Status Of Amendments

A Response After Final was filed December 17, 2003 (without amendment to the claims) requesting reconsideration. An Advisory Action dated January 6, 2004 was then received stating that Applicant's arguments have been fully considered but they are not persuasive. A Notice of Appeal was filed January 27, 2004.

Summary Of The Invention

The invention provides a method and apparatus for reducing the power used by a display device (16) having light emitting pixels, that includes steps and means for: receiving formatted information (12; step 24) for presentation on the display device, the formatted information being defined by a markup language having tags and parameters associated with the tags (page 3, line 27 – page 4, line 3); modifying (pre-processor 10; step 26) the tags and/or the parameters associated with

the tags of the formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information to produce modified formatted information (14); rendering (step 28) the modified formatted information; and displaying (Fig. 2; step 30) the rendered modified formatted information on the display device. As described at page 5, lines 10-23, processor 10 receives formatted information which is to be displayed on a device, and modifies the format of the information by analyzing format tags in the formatted information and replacing tags that will result in more power usage by the display with tags that will result in less power usage. The format-modified information is then rendered into code values representing the brightness of pixel elements in the display and displayed on the display.

Issues For Review By The Board

There are 10 issues presented for review by the Board of Patent Appeals and Interferences:

1. Are Claims 1-2, 4, 7-8, 15-16, 20, 23-24, 26, 29-30, 37-38, and 42 properly rejected under 35 USC 103(a) as unpatentable over Reinhardt (US 5,598,565) in view of Helman et al. (US 6,400,371)?

2. Are Claims 3 and 25 properly rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Yamazaki et al. (US 2002/018060)?

3. Are Claims 5-6, and 27-28 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Oshima et al. (US 6,535,985).

4. Are Claims 9, 11, 17, 31, 33, and 39 properly rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Yamazuki et al. (US 2002/0018060).

5. Are Claims 10 and 32 properly rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as

applied to claims 1 and 23 above, and further in view of Yamazuki et al. (US 2002/0018060) and Oshima et al. (US 6,535,985)?

6. Are Claims 12, 14, 34, and 36 properly rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Paolini et al. (US 2002/0196257)?

7. Are Claims 13 and 15 properly rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Yamazuki et al. (US 2002/0018060) and Paolini et al. (US 2002/0196257)?

8. Are Claims 18, 40, 45 and 46 properly rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Yasui et al. (US 5,248,963)?

9. Are Claims 19 and 41 properly rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Choi (US 2001/0012005)?

10. Are Claims 22, and 44 properly rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Funyu (US 6,320,587)?

Grouping Of Claims

The appealed Claims will stand or fall as single groups with respect to each of the identified rejections.

Arguments

The Rejection of Claims 1-2, 4, 7-8, 15-16, 20, 23-24, 26, 29-30, 37-38, and 42

Claims 1-2, 4, 7-8, 15-16, 20, 23-24, 26, 29-30, 37-38, and 42 are rejected under 35 USC 103(a) as unpatentable over Reinhardt (US 5,598,565) in view of Helman et al. (US 6,400,371). The Examiner states that Reinhardt discloses a method for screen power saving comprising receiving formatted information,

modifying the formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information to produce modified formatted information, rendering the modified formatted information, and displaying the rendered modified formatted information on the display device. While acknowledging that Reinhardt fails to disclose the formatted information being defined by a markup language having tags and parameters associated with the tags, and that the format modification to achieve power savings is of modification of tags and/or parameters associated with the tags of such markup language, the Examiner states it would have been obvious to one of ordinary skill in the art to utilize the teachings of Helman to provide an improved method and system for presenting color television signal by minimizing display artifacts while preserving the relative visual contrast between foreground and background.

As explained in the Request for reconsideration filed Decemer 17, 2003, Reinhardt does disclose a method for saving power in a display by reducing power to all, or a subset of less important pixels in the display. Helman et al. does disclose a method of modifying the foreground and background colors of a color television image to minimize display artifacts while preserving the relative color contrast between foreground and background, where the image is defined by HTML codes and the colors are modified by changing the HTML codes. The combination of Reinhardt and Helman et al., however, does not teach or suggest the present invention, which is directed to the modification of tags and/or parameters associated with the tags of formatted information defined by a markup language to achieve power savings in a display of the formatted information on a display device. Rather, the combination as proposed by the Examiner, if anything, would suggest the modification of tag information in a color television signal to minimizing display artifacts while preserving the relative visual contrast between foreground and background. The problem solved by Helman et al. (i.e. reducing artifacts) is simply a different one than that solved by Reinhardt (i.e. saving power), and there is no suggestion in either Reinhardt or Helman et al. to modify the method of Reinhardt in light of the teachings of Helman et al. in order to obtain the present claimed invention. To such end, it is respectfully noted, e.g., that the Examiner has not provided any indication how the features of Reinhardt, wherein relatively "important" pixels are identified by individual software programs running the display device (see, e.g., col. 4, line 61 –

col. 5, line 11), are to be achieved using tags of markup language. Absent such explanation, it is clear the Examiner is merely attempting to reconstruct the prior art in light of applicants' teaching, and that the Examiner accordingly has failed to make a prima facie argument for obviousness of the claims. Reversal of this rejection is accordingly respectfully requested.

The Rejection of Claims 3 and 25

Claims 3 and 25 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Yamazaki et al. (US 2002/018060). While Yamazaki et al. discloses OLED type devices, there is no teaching or suggestion therein with respect to modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information. The additional teaching of Yamazaki et al. accordingly fails to overcome the deficiencies of the rejection of claims 1 and 23 as discussed above, and reversal of this rejection is accordingly respectfully urged.

The Rejection of Claims 5-6 and 27-28

Claims 5-6, and 27-28 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Oshima et al. (US 6,535,985). While the cited passages of Oshima et al. appear to contain some disclosure relating to highlight control during data processing for energy conservation, there is no teaching or suggestion therein with respect to modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information. The additional teaching of Oshima et al. accordingly fails to overcome the deficiencies of the rejection of claims 1 and 23 as discussed above, and reversal of this rejection is accordingly respectfully urged.

The Rejection of Claims 9, 11, 17, 31, 33, and 39

Claims 9, 11, 17, 31, 33, and 39 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Yamazaki et al. (US 2002/0018060). While paragraph 0240 of Yamazaki et al. does indicate that displaying white characters on a black backgrouond can suppress power consumption, the relation between this teaching and the other cited paragraphs of Yamazaki et al is not explained, and in any event there is no teaching or suggestion therein with respect to modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information as required by the present invention. The additional teaching of Yamazaki et al. accordingly fails to overcome the deficiencies of the rejection of claims 1 and 23 as discussed above, and reversal of this rejection is accordingly respectfully urged.

The Rejection of Claims 10 and 32

Claims 10 and 32 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Yamazaki et al. (US 2002/0018060) and Oshima et al. (US 6,535,985). As explained above, there is no teaching or suggestion either Yamazaki et al. or Oshima et al. with respect to modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information as required by the present invention. The additional combined teachings of Yamazaki et al. and Oshima et al. accordingly fail to overcome the deficiencies of the rejection of claims 1 and 23 as discussed above, and reversal of this rejection is accordingly respectfully urged.

The Rejection of Claims 12, 14, 34, and 36

Claims 12, 14, 34, and 36 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Paolini et al. (US 2002/0196257). While Paoline et al. appears to relate to computer programs for three dimensional text creation which may provide for good legibility, there is no teaching

or suggestion therein with respect to modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information as required by the present invention. The additional teaching of Paolini et al. accordingly fails to overcome the deficiencies of the rejection of claims 1 and 23 as discussed above, and reversal of this rejection is accordingly respectfully urged.

The Rejection of Claims 13 and 15

Claims 13 and 15 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Yamazaki et al. (US 2002/0018060) and Paolini et al. (US 2002/0196257). As explained above, there is no teaching or suggestion either Yamazaki et al. or Paolini et al. with respect to modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information as required by the present invention. The additional combined teachings of Yamazaki et al. and Paolini et al. accordingly fail to overcome the deficiencies of the rejection of claims 1 and 23 as discussed above, and reversal of this rejection is accordingly respectfully urged.

The Rejection of Claims 18, 40, 45, and 46

Claims 18, 40, 45 and 46 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Yasui et al. (US 5,248,963). While Yasui et al. may disclose a method for erasing a liquid crystal display as indicated by the Examiner, there is no teaching or suggestion in Yasui et al. with respect to modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information as required by the present invention. The additional teachings of Yasui et al. accordingly fails to overcome the deficiencies of the rejection of claims 1 and 23 as discussed above, and reversal of this rejection is accordingly respectfully urged. It also respectfully urged that the teaching of Yasui et

al. with respect to erasing a liquid crystal display are irrelevant to the claimed format modification requirements.

The Rejection of Claims 19 and 41

Claims 19 and 41 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Choi (US 2001/0012005). While Choi appears to disclose a display wherein recorded data of the pixels must be all deleted for a next sub-frame, there does not appear to be a disclosure of foprmat modification including removal of one or more graphic elements from information to be displayed. Further, there is no teaching or suggestion in Choi with respect to modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information as required by the present invention. The additional teachings of Choi accordingly fails to overcome the deficiencies of the rejection of claims 1 and 23 as discussed above, and reversal of this rejection is accordingly respectfully urged

The Rejection of Claims 22 and 44

Claims 22, and 44 are rejected under 35 USC 103(a) as being unpatentable over Reinhardt (US 5,598,565) and Helman et al. (US 6,400,371) as applied to claims 1 and 23 above, and further in view of Funyu (US 6,320,587). While Funyu is directed towards font processing apparatus which may be used with HTML documents, there is no teaching or suggestion in Funyu with respect to modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information as required by the present invention. The additional combined teachings of Funyu accordingly fails to overcome the deficiencies of the rejection of claims 1 and 23 as discussed above, and reversal of this rejection is accordingly respectfully urged

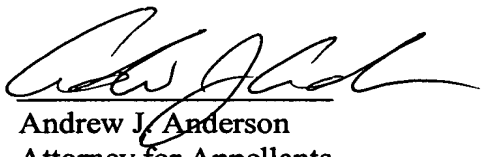
Summary

The cited prior art, singly or in combination, contains no teaching or disclosure with respect to saving power by modifying the tags and/or the parameters associated with the tags of markup language formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information as required by the present invention.

Conclusion

For the above reasons, Appellants respectfully request that the Board of Patent Appeals and Interferences reverse the rejection by the Examiner and mandate the allowance of Claims 1-20, 22-42, and 44-46.

Respectfully submitted,



Andrew J. Anderson
Attorney for Appellants
Registration No. 33,564

Telephone:(585) 722-9662
Facsimile:(585) 477-1148

Appendix I - Claims on Appeal

1. A method for reducing the power used by a display device having light emitting pixels, comprising the steps of:

a) receiving formatted information for presentation on the display device, the formatted information being defined by a markup language having tags and parameters associated with the tags;

b) modifying the tags and/or the parameters associated with the tags of the formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information to produce modified formatted information;

c) rendering the modified formatted information; and

d) displaying the rendered modified formatted information on the display device.

2. The method claimed in claim 1, wherein the display device is a portable emissive flat-panel display.

3. The method claimed in claim 1, wherein the display device is an OLED display device.

4. The method claimed in claim 1, wherein the information includes text formatted with characters presented on a background.

5. The method claimed in claim 4, wherein the information includes dark text on a light background and the format modification is the reversal of the brightness of the text and the background.

6. The method claimed in claim 4, wherein the modification is the reversal of the color of the text and the background.

7. The method claimed in claim 4, wherein the modification includes modifying the brightness of the text background.

8. The method claimed in claim 4, wherein the modification includes modifying the brightness of the text.

9. The method claimed in claim 4, wherein the display is a color display in which the display of some colors consumes less power than the display of other colors, and the modification includes modifying the color of the text background.

10. The method claimed in claim 9, wherein the modification is the reversal of the color of the text and the background.

11. The method claimed in claim 4, wherein the display is a color display wherein the display of some colors consumes less power than the display of other colors, and the modification includes modifying the color of the text.

12. The method claimed in claim 4, wherein the modification includes modifying the thickness of the text characters.

13. The method claimed in claim 12, wherein the modification includes changing light bold text on a dark background to normal text.

14. The method claimed in claim 12, wherein the modification includes changing dark normal text on a light background to bold text.

15. The method claimed in claim 1, wherein the information includes one or more graphic elements.

16. The method claimed in claim 15, wherein the modification includes modifying the brightness of the one or more of the graphic elements.

17. The method claimed in claim 15, wherein the display is a color display wherein the display of some colors consumes less power than the display of other colors, and the modification includes modifying the color of the one or more graphics.

18. The method claimed in claim 15, wherein the modification includes binarizing the one or more graphic elements.

19. The method claimed in claim 15, wherein the modification includes removing one or more of the graphic elements.

20. The method claimed in claim 1, wherein the modification is user selectable.

22. The method claimed in claim 1 wherein the information format is described in hypertext markup language (html).

23. A display system, comprising:

a) a display device having light emitting pixels;

b) a source of formatted information for presentation on the display device, the formatted information being defined by a markup language having tags and parameters associated with the tags;

c) means for modifying the tags and/or the parameters associated with the tags of the formatted information to reduce the number and/or intensity of bright pixels in a display of the formatted information to produce modified formatted information; and

d) means for rendering the modified formatted information for display on the display device.

24. The display system claimed in claim 23, wherein the display device is a portable emissive flat-panel display.

25. The display system claimed in claim 23, wherein the display device is an OLED display device.

26. The display system claimed in claim 23, wherein the information includes text formatted with characters presented on a background.

27. The display system claimed in claim 26, wherein the information includes dark text on a light background and the modification is the reversal of the brightness of the text and the background.

28. The display system claimed in claim 26, wherein the modification is the reversal of the color of the text and the background.

29. The display system claimed in claim 26, wherein the modification includes modifying the brightness of the text background.

30. The display system claimed in claim 26, wherein the modification includes modifying the brightness of the text.

31. The display system claimed in claim 26, wherein the display is a color display wherein the display of some colors consumes less power than the display of other colors, and the modification includes modifying the color of the text background.

32. The display system claimed in claim 31, wherein the modification is the reversal of the color of the text and the background.

33. The display system claimed in claim 26, wherein the display is a color display in which the display of some colors consumes less power than the display of other colors, and the modification includes modifying the color of the text.

34. The display system claimed in claim 26, wherein the modification includes modifying the thickness of the text characters.

35. The display system claimed in claim 34, wherein the modification includes changing light bold text on a dark background to normal text.

36. The display system claimed in claim 34, wherein the modification includes changing dark normal text on a light background to bold text.

37. The display system claimed in claim 23, wherein the information includes one or more graphic elements.

38. The display system claimed in claim 37, wherein the modification includes modifying the brightness of the one or more of the graphic elements.

39. The display system claimed in claim 37, wherein the display is a color display wherein the display of some colors consumes less power than the display of other colors, and the modification includes modifying the color of the one or more graphics.

40. The display system claimed in claim 37, wherein the modification includes binarizing the one or more graphic elements.

41. The display system claimed in claim 37, wherein the modification includes removing one or more of the graphic elements.

42. The display system claimed in claim 23, wherein the modification is user selectable.

44. The display system claimed in claim 23 wherein the information format is described in hypertext markup language (html).

45. The method claimed in claim 4, wherein the modification includes binarizing the text characters and background.

46. The display system claimed in claim 26, wherein the modification includes binarizing the text characters and background.